

Redmond, Washington 2002

Water Quality Report

2001 Annual Report on Your Drinking Water

We are proud to present the City of Redmond's Drinking Water Report for the year 2001.

The contents of this report include:

- The sources of your drinking water
- The quality and safety of your drinking water
- What's in your drinking water
- General information about all tap water and bottled water
- How you can become involved in decisions affecting your drinking water

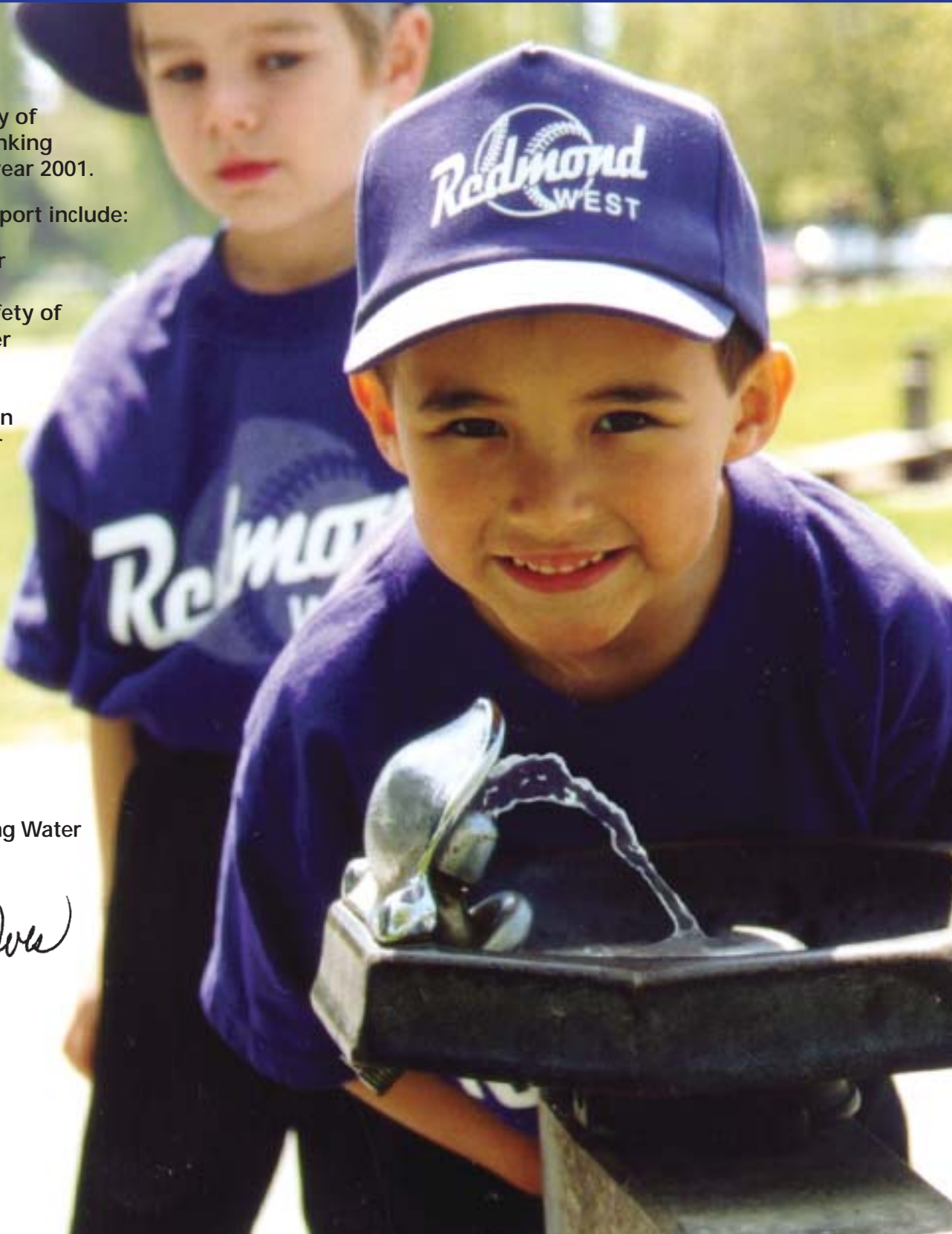
Safe Drinking Water is Our Highest Priority.



Tom Fix, Senior Drinking Water Analyst



Rosemarie Ives,
Mayor





The City of Redmond has a hybrid water system. Residents on the west side of the Sammamish River and in Redmond Ridge drink surface water that comes from the Tolt Reservoir in the Cascade Mountains.

“From the Cascade Mountains to Your Tap”

The Surface Water Source/The Tolt Watershed

(This water is *soft*: 21mg/l or 1.2 grains/gallon)

The Tolt Reservoir and Watershed are located east of Redmond in the Cascade Mountains. Rivers, streams and snowmelt are impounded here to make up the reservoir supply. The water travels through a supply pipeline to Redmond and other eastside cities and water districts on its way to Seattle. The Watershed and pipeline are owned by the City of Seattle. Redmond buys this water, and both cities monitor and test it to maintain quality.

Watershed Protection

The Tolt Watershed covers nearly 14,000 acres and is closed to public access. Seattle's aggressive watershed protection plan safeguards the water supply from degradation and human intrusion. The Washington State Department of Health has determined the Watershed to have *low vulnerability* to sources of contamination. Contamination that might occur would most likely be from soil erosion or animal activity.

Treatment

Water treatment of the Tolt supply consists of chlorine disinfection, fluoridation for dental health, and mineral additives (calcium oxide and sodium bicarbonate), which help reduce the water's natural corrosive effect on plumbing in homes and businesses. Treatment improvements in 2001 include source **filtration and ozone**. Filtration removes organic material and makes the water clearer (less turbid). Ozone kills tough pathogens like **giardia** and **cryptosporidium**. These improvements also mean less chlorine is needed for disinfection.

There was no detection of cryptosporidium in samples collected from the Tolt supply in 2001. However, cryptosporidium are commonly found in all surface waters in the natural environment. If this infectious pathogen were ingested, the oocysts may cause flu-like symptoms, such as diarrhea and abdominal cramps. For the general public, these symptoms would not be long lasting. Immuno-compromised persons, as well as the elderly should seek advice from their health care providers and can also call the Safe Drinking Water Hotline at 1-800-426-4791.

2001 Water Quality Report - Tolt Supply

This is what's in your tap water		This much is allowed	This level or less is ideal	Meets USEPA Standards?	Likely Sources of Detected Compounds
DETECTED COMPOUNDS TOLT SURFACE WATER		MCL	MCLG	Compliance	HOW DID IT GET THERE?
FLUORIDE (ppm)	Average 1.0 Range 0 - 1.5	4	4	✓ YES	Water additive that promotes dental health
TURBIDITY (NTU)	Average 0.07 Range 0.02 - 0.3	(TT) 5 NTU	Not Applicable	✓ YES	Soil runoff
NITRATE (ppm)	Average 0.18 ppm	10	10	✓ YES	Erosion from natural environment
TTHM's (ppb) (total trihalomethanes)	Average 31 Range 24 - 38	100	0	✓ YES	By-product of chlorination
Individual TTHM Species 1) Chloroform 2) Bromodichloromethane		Unregulated Substances 28 ppb average 2.6 ppb average		By-products of chlorination No EPA Limit No EPA Limit	

Over 100 other contaminants were tested for and not detected including microorganisms, chemicals, pesticides, herbicides and solvents. If you have questions or concerns about any substance or contaminant, please contact Redmond Water Quality at 425-556-2847.

**Key to Terms and Definitions on page 6.*

Residents living east of the river drink well water supplied by aquifers. This groundwater supply can be supplemented with Tolt water in the summer months when water demand is highest.



“Buried Treasure”

The Groundwater System

*(This water is **medium hard**: 100mg/l or 5.8 grains/gallon)*

East of the Sammamish River and beneath the Redmond valley floor are aquifers. Since the early 1950's they have provided over 40% of Redmond's drinking water. In 2001 the City's four production wells pumped nearly 800 million gallons from the aquifers. The Redmond aquifers are a unique resource in the Puget Sound region, since most surrounding cities and water districts rely entirely on Seattle Public Utilities (SPU) for water.

During the past 50 years, we have been fortunate to maintain the quality and quantity of our groundwater even though the wells are shallow and vulnerable to contamination. The most abundant and highest quality water comes from an aquifer 50 feet below ground surface.

Groundwater Protection

An aquifer is an underground, water bearing, geologic formation and is naturally protected from many contaminants, but not all. Redmond's **Groundwater**

Protection Program is taking final shape and is focused on protecting this vital resource. It costs less than half the price to produce our own water than to buy water from SPU. The water from our aquifers has saved Redmond water users millions of dollars.

Over the past five years, Redmond has been carefully developing a groundwater protection plan and ordinance to safeguard this drinking water supply. The focus of the ordinance will be on preventing pollution, since groundwater remediation can cost 10 times more than pollution prevention. Several of the wells are located in the heart of Redmond's downtown. Consequently, businesses in the area will be asked to provide information about hazardous materials they use and store, and also to incorporate measures designed to protect groundwater.

You may request an informational brochure on the groundwater protection ordinance by calling Redmond Natural Resources at 425-556-2825. For technical questions, please contact Tom Barry, Groundwater Project Manager, at 425-556-2870.

2001 Water Quality Report - Groundwater Supply

This is what's in your tap water		This much is allowed	This level or less is ideal	Meets USEPA Standards?	Likely Sources of Detected Compounds
DETECTED COMPOUNDS GROUNDWATER		MCL	MCLG	Compliance	HOW DID IT GET THERE?
FLUORIDE (ppm)	Average 1.03 Range 0.87 - 1.2	4	4	✓ YES	Water additive & natural deposits that promotes dental health
NITRATE (ppm)	Average 0.87 Range 0 - 1.46	10	10	✓ YES	Erosion from natural environment
TTHM's (ppb) (total trihalomethanes)	Average 11.6 Range 3.5 - 22	100	0	✓ YES	By-product of chlorination
Individual TTHM Species		Unregulated Substances		By-products of chlorination	
1) Chloroform		8.75 ppb average		No EPA Limit	
2) Bromodichloromethane		1.88 ppb average		No EPA Limit	
3) Chlorodibromomethane		1.02 ppb average		No EPA Limit	
4) Bromoform		<0.5 ppb average		No EPA Limit	

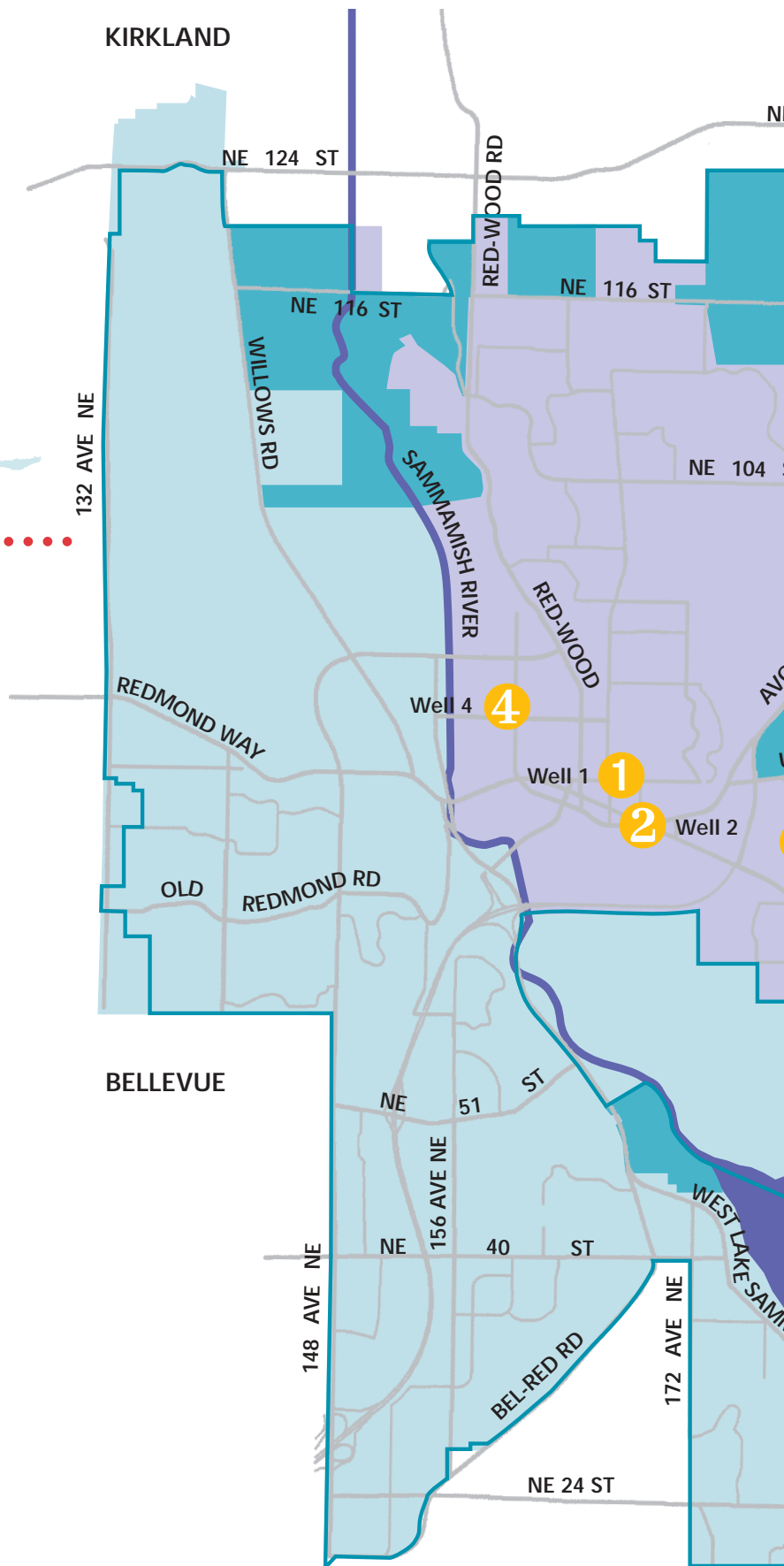
Over 100 other contaminants were tested for and not detected including microorganisms, chemicals, pesticides, herbicides and solvents. If you have questions or concerns about any substance or contaminant, please contact Redmond Water Quality at 425-556-2847.

**Key to Terms and Definitions on page 6.*



Tolt Reservoir - Supplies 60% of Redmond's Drinking Water

Areas in light blue get their drinking water from the Tolt River Watershed.



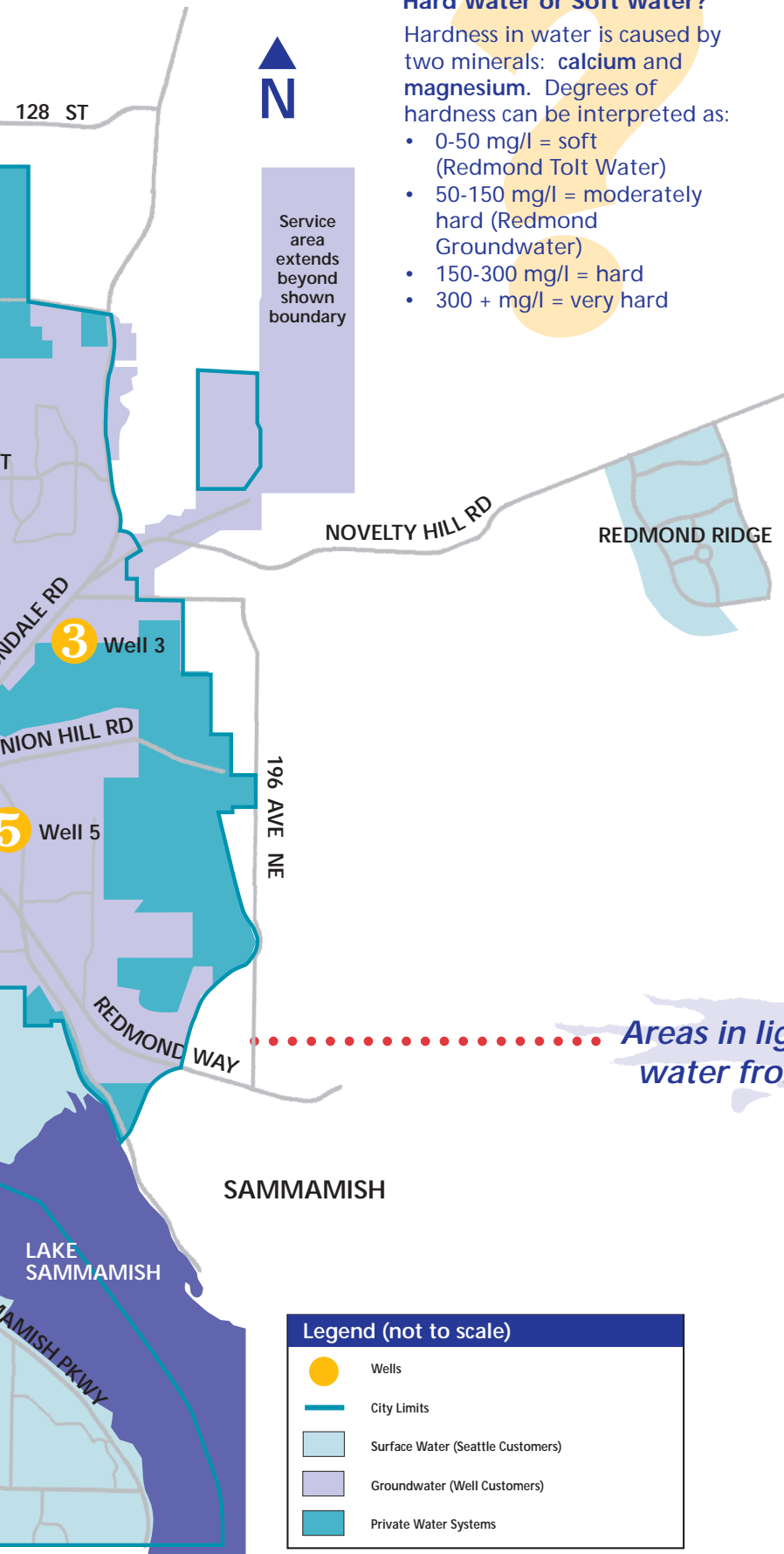
What residents can do to support groundwater protection and prevent drinking water pollution:

- 1) *Be a responsible pet owner. Clean up pet waste and dispose of properly.*
- 2) *Incorporate natural gardening practices into your landscape. Call the Natural Lawn and Garden Care Hotline at 206-633-0224 for more information.*
- 3) *Patronize environmentally responsible dry cleaners.*
- 4) *Inspect and maintain your car to reduce oil and antifreeze leaks.*
- 5) *Dispose of hazardous materials wisely.*

**Most Frequently asked question from Redmond residents...
Hard Water or Soft Water?**

Hardness in water is caused by two minerals: **calcium** and **magnesium**. Degrees of hardness can be interpreted as:

- 0-50 mg/l = soft (Redmond Tolt Water)
- 50-150 mg/l = moderately hard (Redmond Groundwater)
- 150-300 mg/l = hard
- 300 + mg/l = very hard



Areas in light purple get their drinking water from one of Redmond's wells.



Redmond's drinking water is monitored and analyzed every workday, checking for a wide variety of contaminants. Water is drawn from sample stands, strategically located throughout the City, and tests are conducted on site and in the laboratory.

Over 3,000 samples were taken in 2001 and all met State and Federal safety standards.

Something to Think About:

In Western Washington we still enjoy the luxury of safe, plentiful drinking water.

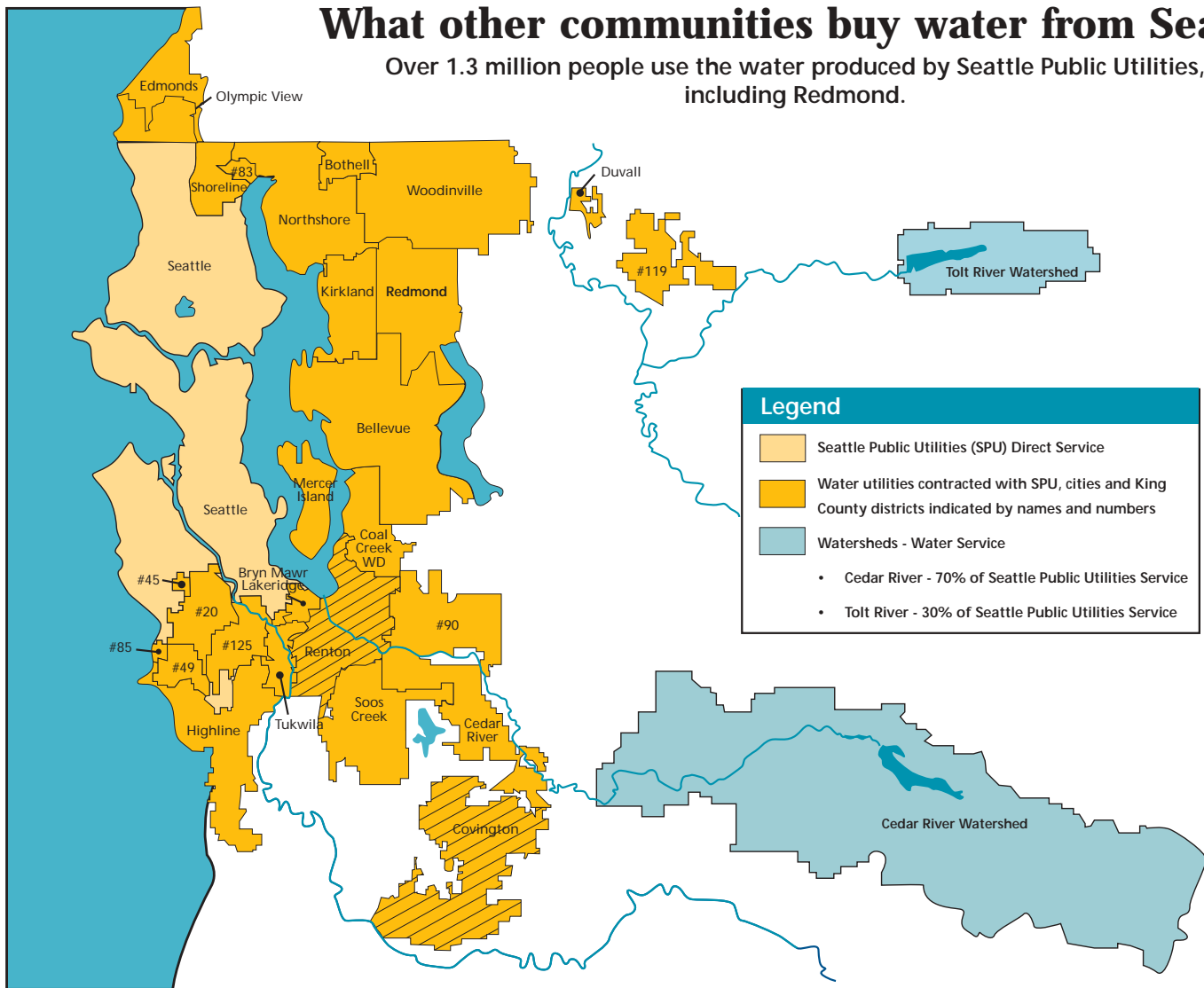
Many in the rest of the world are not so fortunate. Waterborne diseases kill more than 5 million people each year, making them collectively more lethal than AIDS.

Well #4 was dedicated on May 23, 2002 and adds 1 million gallons of water per day to our supply.



What other communities buy water from Seattle?

Over 1.3 million people use the water produced by Seattle Public Utilities, including Redmond.



Keeping the Lead Out

2000 Lead and Copper City-wide Monitoring Program

COMPOUNDS & UNITS	MCLG	90th Percentile Action Level	90th Percentile Residential Level	# of Homes Exceeding Action Level	Sources
LEAD (ppb)	0	15 ppb	3 ppb	0 out of 32	Corrosion of household plumbing
COPPER (ppm)	1.3 ppm	1.3 ppm	<0.02	0 out of 32	Corrosion of household plumbing

Lead & Copper: There is no detectable lead or copper in the source waters. However some lead and copper can leach out of home plumbing systems into the tap water. Running the cold water tap for 30 seconds in the morning flushes most lead and copper from the tap water. Redmond conducted residential lead and copper monitoring in 2000 from selected "high risk" homes (1983-1985). **No samples exceeded the action levels.** Next residential lead & copper sampling will be the summer of 2003.

Key to Terms & Definitions

ACTION LEVEL: The concentration of a contaminant (like lead or copper) which, if exceeded, triggers treatment or other requirements which a water system must follow.

MCLG (Maximum Contaminant Level Goal): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLG's allow for a margin of safety.

MCL (Maximum Contaminant Level): The highest level of a contaminant that is allowed in drinking water. MCL's are set as close to the MCLG's as feasible using the best available treatment technology.

NTU (Nephelometric Turbidity Units): How turbidity is measured.

PPM (Parts Per Million) 1 ppm is roughly the equivalent of 1 second every 12 days.

PPB (Parts Per Billion) 1 ppb is roughly the equivalent of 1 second every 32 years.

T.T. (Treatment Technique): A required process intended to reduce the level of a contaminant in drinking water.






TURBIDITY: A measure of water clarity. Turbidity has no health effects, but highly turbid water can interfere with disinfection and provide a medium for bacterial growth. Turbidity measurements are required for surface waters but not groundwaters.

General Information About All Drinking Water

The sources of drinking water (both tap and bottled water) include rivers, lakes, streams,

ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals, and can pick up substances resulting from the presence of animal or human activity.

Substances and contaminants that could be present in source water include:

-  **Microbes** such as viruses and bacteria, which may come from septic systems, livestock and wildlife.
-  **Inorganic chemicals** such as salts and metals, which may be naturally occurring or result from urban stormwater runoff, wastewater discharges and farming.
-  **Pesticides and herbicides** from agriculture, urban stormwater runoff and residential uses.
-  **Organic chemicals** both synthetic and volatile, which are by-products of industry, and can also come from gas stations, dry cleaners, urban stormwater runoff, and septic systems.
-  **Radioactive contaminants**, which can be naturally occurring or result from petroleum production or mining activities.



Major improvements in 2001 at the Tolt source include ozonation and filtration. Ozone kills tough pathogens like *Cryptosporidium* and *Giardia*. Filtration removes organic matter and turbidity. These improvements make your drinking water safer and should make it taste better.

In order to insure the safety of tap water, the EPA regulates the amount of contaminants allowed in public drinking water. The FDA regulates the contaminants in bottled water, which must provide a similar degree of safety.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hot Line at 1-800-426-4791.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline 1-800-426-4791.

For additional information please contact:

Environmental Protection Agency (EPA)
www.epa.gov/safewater
Safe drinking water hotline: 1-800-426-4791

Washington Dept. of Health (DOH)
www.doh.wa.gov/ehp/dw/
1-800-521-0323

Redmond Public Utilities Water Quality
Water quality office: 425-556-2847
www.ci.redmond.wa.us/util/services/WaterQuality

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Photography: Craig King, Tom Fix, Nelson Monroe
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*Water is our most precious resource,
vital to our economy, our daily lives
and the health of our environment.*

Safe Drinking Water & Water System Security

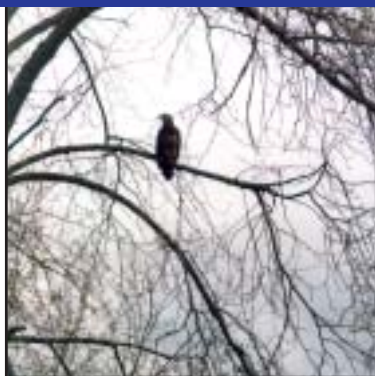
The City of Redmond understands the challenge and trust involved in providing safe drinking water. For years, our water system and drinking water have been protected by a system of barriers such as alarms, surveillance, and daily water quality testing.

With the new century come new challenges that require even greater scrutiny of water system security. State and Federal agencies, as well as the American Water Works Association, are working together to help communities, like Redmond, meet these new challenges and further secure the safety of your drinking water.

Did You Know?

Water Filters

Installing a water filter is a personal decision that gives some people a greater sense of security. Other people prefer the taste of filtered water. A filter is not needed to make Redmond tap water meet federal or state water safety standards.



All filters require maintenance, should be bought from a reputable dealer, and should meet the performance standards of NSF International and the Water Quality Association. Beware of water filter companies that make fraudulent claims.

About Fluoride in Drinking Water

The safety and effectiveness of fluoride in drinking water has been recognized for over 50 years. Extensive dental disease was common in the United States in the first half of the 20th century. Failure to meet the minimum standard of having six opposing teeth was a leading cause of rejection from military service in both world wars. No wonder the *Centers for Disease Control and Prevention* lists fluoridation of drinking water as one of the **"Ten Great Public Health Achievements of the 20th Century"** and encourages the fluoridation of all community water supplies. The addition of fluoride to toothpaste comes as a result of the effectiveness of fluoride in drinking water. Redmond's drinking water has been fluoridated (at 1 ppm) for over 25 years, and the cost is about 50 cents per person, per year.

Americans spend nearly \$3 billion annually on bottled water. Bottled water costs up to 1,000 times more than your tap water and is less regulated. Some bottlers simply fill their bottles with city drinking water to produce "bottled water." In Redmond you do not need to buy bottled water for safety reasons.

How Can I Get Involved In Decisions Affecting My Drinking Water?

Attend and comment at City Council meetings on the 1st and 3rd Tuesday of the month at 7:30 pm in the Council Chambers, located at 8701 160th Ave NE. Agendas for the meetings can be found on the City of Redmond's website at www.ci.redmond.wa.us or posted in the lobbies of City Hall and the Public Safety Building. Contact us at waterquality@ci.redmond.wa.us or call 425-556-2825.

Este informe contiene informacion muy importante sobre su agua beber. Traduzcalo o hable con alguien que lo entienda bien.



City of Redmond Natural Resources - CAPNR
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